TECHNICAL SUPPORT DOCUMENT

Air Discharge Permit ADP 23-3583
Air Discharge Permit Application L-734

Issued: June 12, 2023

Lakeside Industries – RAP Crusher

SWCAA ID - 2785

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ABBREVIATIONS

List of Acronyms

ADP	Air Discharge Permit
AP-42	Compilation of Emission Factors, AP-42, 5th Edition, Volume 1, Stationary Point and Area Sources – published by EPA
ASIL	Acceptable Source Impact Level
BACT	Best available control technology
CAM	Compliance Assurance Monitoring
CAS#	Chemical Abstracts Service registry number
CFR	Code of Federal Regulations
EPA	U.S. Environmental Protection Agency
EU	Emission Unit
mfr	Manufacturer
NESHAP	National Emission Standards for Hazardous Air Pollutants
NOV	Notice of Violation/
NSPS	New Source Performance Standard
PSD	Prevention of Significant Deterioration
RCW	Revised Code of Washington
SCC	Source Classification Code
SDS	Safety Data Sheet
SQER	Small Quantity Emission Rate listed in WAC 173-460
Standard	Standard conditions at a temperature of 68°F (20°C) and a pressure of 29.92 in Hg (760 mm Hg)
SWCAA	Southwest Clean Air Agency
T-BACT	Best Available Control Technology for toxic air pollutants
WAC	Washington Administrative Code

List of Units and Measures

acfm	Actual cubic foot per minute
gpm	Gallon per minute
gr/dscf	Grain per dry standard cubic foot
kW	Kilowatt
ppm	Parts per million
ppmv	Parts per million by volume
ppmvd	Parts per million by volume, dry
ppmw	Parts per million by weight
psig	Pounds per square inch, gauge
rpm	Revolution per minute
tph	Ton per hour
tpy	Tons per year

List of Chemical Symbols, Formulas, and Pollutants

CO	Carbon monoxide
CO_2e	Carbon dioxide equivalent
HAP	Hazardous air pollutant listed pursuant to Section 112 of the Federal Clean Air Act
NO_2	Nitrogen dioxide
NO_x	Nitrogen oxides
O_2	Oxygen
O_3	Ozone
PM	Particulate Matter with an aerodynamic diameter 100 µm or less
PM_{10}	PM with an aerodynamic diameter 10 µm or less
$PM_{2.5}$	PM with an aerodynamic diameter 2.5 µm or less
SO_2	Sulfur dioxide
SO_x	Sulfur oxides
TAP	Toxic air pollutant pursuant to Chapter 173-460 WAC
VOC	Volatile organic compound

Terms not otherwise defined have the meaning assigned to them in the referenced regulations or the dictionary definition, as appropriate.

1. FACILITY IDENTIFICATION

Applicant Name:	Lakeside Industries, Inc.
Applicant Address:	PO Box 7016, Issaquah, WA 98027
Facility Name:	Lakeside Industries – RAP Crusher
Facility Address:	2001 Johnson Road, Centralia, WA 98531
SWCAA Identification:	2785
Contact Person:	Karen Deal, Director of Environmental & Land Use
Primary Process:	RAP Recycling Operation
SIC/NAICS Code:	1429 / Crushed and Broken Stone 212319 / Other Crushed and Broken Stone Mining and Quarrying
Facility Classification:	Natural Minor

2. FACILITY DESCRIPTION

This facility is a portable aggregate crushing plant configured with two aggregate crushers and a two deck aggregate screen. The facility is primarily used to process recycled asphalt.

3. CURRENT PERMITTING ACTION

This permitting action is in response to Air Discharge Permit application number L-734 (ADP Application L-734) dated April 27, 2023. Lakeside Industries (Lakeside) submitted ADP Application L-734 requesting approval of the following:

- One Eagle / Jumbo 1200 impact crusher.
- One Kolberg-Pioneer / 4030 roll crusher.
- One Eagle vibratory aggregate screen.

The current permitting action provides approval for a new portable aggregate crushing plant as proposed in ADP Application L-734. This is the initial permitting action for this facility.

4. PROCESS DESCRIPTION

4.a Rock Crushing (*new*). The proposed rock crushing equipment will primarily be used to crush recycled asphalt from paving projects. Primary crushing equipment consists of a horizontal impact crusher connected to a 2-deck aggregate screen. Secondary crushing equipment consists of a single roll crusher. Raw material will be fed to the crushing unit using front-end loaders. Oversized material is returned to the crushers via conveyor. Sized material is transferred via conveyor belt to onsite storage piles. High pressure spray nozzles will be used to control fugitive dust emissions at the entrance of the crushers. Other emission points will be watered as necessary to control fugitive dust emissions. Wet suppression (sprinklers and hose sprays) will be used to control fugitive emissions from associated haul roads and storage piles.

5. EQUIPMENT/ACTIVITY IDENTIFICATION

5.a Aggregate Crusher – Eagle (*new*). This unit is a horizontal impact crusher. Wet suppression systems are used to control dust emissions at the inlet of the crusher and as necessary at the finished product delivery belt.

Make / Model: Eagle / Jumbo 1200 (s/n 10688)
Year Built: 1990
Capacity: 100 tph
NSPS Applicable: N/A

5.b Aggregate Crusher – Kolberg-Pioneer (*new*). This unit is a triple roll crusher. Wet suppression systems are used to control dust emissions at the inlet of the crusher and as necessary at the finished product delivery belt.

Make / Model: Kolberg-Pioneer / 4030 (s/n 4030-TRT-1141)
Year Built: 1973
Capacity: 25 tph
NSPS Applicable: N/A

5.c Aggregate Screen - Eagle (*new*). This unit is a 2-deck aggregate screen. Wet suppression systems are used as necessary to control dust emissions from the screen and associated material handling points.

Make / Model: Eagle (s/n 10688)
Year Built: 1990
Capacity: 100 tph
NSPS Applicable: N/A

5.d Haul Roads and Storage Piles (*new*). Vehicle traffic and material handling operations generate fugitive dust emissions. Haul roads may be paved and/or unpaved depending on the location at which the facility is operating. Fugitive emissions from storage piles and haul roads are minimized with the use of low pressure wet suppression.

5.e Equipment/Activity Summary.

ID No.	Equipment/Activity	Control Equipment/Measure
1	Rock Crusher (Eagle – Impact)	High pressure spray system
2	Rock Crusher (Kolberg-Pioneer – Roll)	High pressure spray system
3	Aggregate Screen (Eagle – Two deck)	Wet Suppression
4	Haul Roads and Storage Piles	Wet Suppression

6. EMISSIONS DETERMINATION

Emissions to the ambient atmosphere from the portable aggregate crushing plant proposed in ADP Application L-734 consist of particulate matter (PM).

Unless otherwise specified by SWCAA, actual emissions must be determined using the specified input parameter listed for each emission unit and the following hierarchy of methodologies:

(a) Continuous emissions monitoring system (CEMS) data;
(b) Source emissions test data (EPA reference method). When source emissions test data conflicts with CEMS data for the time period of a source test, source test data must be used;
(c) Source emissions test data (other test method); and
(d) Emission factors or methodology provided in this TSD.

6.a Rock Crushing and Screening (*new*). Potential emissions from aggregate crushing operations are calculated based on a maximum material throughput of 300,000 tpy, a control efficiency of 80% (wet suppression), and applicable emission factors. Except for primary crushing, all emission factors for rock crushing are 'controlled' factors from the 8/04 version of EPA AP-42, Table 11.19.2-2. Emission factors for tertiary crushing have been used as an upper limit for secondary crushing as suggested in the 8/04 version of the table.

Emission factors for primary crushing are derived from the 1/95 version of EPA AP-42, Table 11.19.2-2 which only provided an 'uncontrolled' PM factor for primary crushing. An 'uncontrolled' PM_{10} factor was calculated using a PM to PM_{10} ratio of 2.1:1 as specified in the 1/95 table footnotes. An 'uncontrolled' $PM_{2.5}$ factor was calculated using a PM to $PM_{2.5}$ ratio of 12:1 as cited for tertiary crushing in the 8/04 table.

Annual emissions from aggregate crushing operations will be calculated based on actual material throughput using the same methodology.

Total Emissions:	PM	0.41 tpy
	PM_{10}	0.16 tpy
	$PM_{2.5}$	0.02 tpy

Activity	Throughput (tpy)	Pollutant	Emission Factor - Controlled (lb/ton)	Turn Points	Emissions (tpy)
Primary crushing	150,000	PM	0.00014		0.011
		PM_{10}	0.000067		0.005
		$PM_{2.5}$	0.000012		0.001
Secondary crushing	150,000	PM	0.0012		0.090
		PM_{10}	0.00054		0.041
		$PM_{2.5}$	0.0001		0.008
Tertiary crushing	150,000	PM	0.0012		0.090
		PM_{10}	0.00054		0.041
		$PM_{2.5}$	0.0001		0.008
Screening	150,000	PM	0.0022		0.165
		PM_{10}	0.00074		0.056
		$PM_{2.5}$	0.00005		0.004
Loading/conveying	150,000	PM	0.00014	5	0.053
		PM_{10}	0.000046		0.017
		$PM_{2.5}$	0.000013		0.005

6.b Haul Roads (*new*). Potential emissions from unpaved haul roads are calculated based on an average truck weight of 33 tons, an average silt content of 4.8%, an average round trip distance of 0.5 miles, and the emission equation from EPA AP-42, Section 13.2.2 (11/06). The use of wet suppression is assumed to provide an overall control efficiency of 80% for fugitive dust emissions. Average truck weight represents an empty truck weight of 26,000 pounds and a 40,000 pounds load of aggregate. The 4.8% silt content is the average silt content listed for sand and gravel plant processing roads in AP-42 Table 13.2.2.1 (11/06).

Annual emissions from haul road use will be calculated based on actual haul road traffic using the same methodology.

$$E = k\left(\frac{s}{12}\right)^a\left(\frac{w}{3}\right)^b$$ lb/vehicle mile travelled (uncontrolled)

Where: E = pounds of pollutant per vehicle mile traveled
w = average truck weight in tons
s = road surface silt content (%)
k, a and b (see table below)

Constant	$PM_{2.5}$	PM_{10}	PM (PM_{30})
k	0.15	1.5	4.9
a	0.9	0.9	0.7
b	0.45	0.45	0.45

Material Conveyed =	150,000	tons
Average Truck Weight =	33.000	tons
Round Trip Distance =	0.50	miles
Average Load =	20.00	tons
Total Miles Traveled =	3,750	miles
Assumed Silt Content =	4.8	% (AP-42 Table 13.2.2-1)
Assumed Control (wet supp.) =	80	%

Pollutant	Uncontrolled EF lb/mile	Controlled EF lb/mile	Emissions tpy	Emission Factor Source
PM	7.59	1.52	2.85	AP-42 13.2.2 (11/06)
PM_{10}	1.93	0.39	0.73	AP-42 13.2.2 (11/06)
$PM_{2.5}$	0.30	0.06	0.11	AP-42 13.2.2 (11/06)

6.c Emissions Summary/Facility-wide Potential to Emit. Facility-wide potential to emit as calculated in the sections above is summarized below.

Pollutant	Potential Emissions (tpy)	Project Increase (tpy)
NO_X	0.00	0.00
CO	0.00	0.00
VOC	0.00	0.00
SO_2	0.00	0.00
Lead	0.00	0.00
PM	3.25	3.25
PM_{10}	0.88	0.88
$PM_{2.5}$	0.14	0.14
TAP	0.00	0.00
HAP	0.00	0.00
CO_2e	0	0

7. REGULATIONS AND EMISSION STANDARDS

Regulations that have been used to evaluate the acceptability of the proposed facility and establish emission limits and control requirements include, but are not limited to, the regulations, codes, or requirements listed below.

7.a 40 CFR 60.670 et seq. (Subpart OOO) "Standards of Performance for Nonmetallic Mineral Processing Plants" establishes opacity and particulate matter emission limits for stationary (fixed) plants with capacities greater than 25 tons per hour and portable plants greater than 150 tons per hour that were constructed, reconstructed or modified after August 31, 1983. More stringent requirements apply to affected facilities constructed, reconstructed or modified on or after April 22, 2008. This subpart is not applicable to the rock crushing equipment proposed in ADP Application L-734 due to age and low capacity.

7.b Revised Code of Washington (RCW) 70A.15.2040 empowers any activated air pollution control authority to prepare and develop a comprehensive plan or plans for the prevention, abatement and control of air pollution within its jurisdiction. An air pollution control authority may issue such orders as may be necessary to effectuate the purposes of the Washington Clean Air Act and enforce the same by all appropriate administrative and judicial proceedings subject to the rights of appeal as provided in Chapter 62, Laws of 1970 ex. sess.

7.c RCW 70A.15.2210 provides for the inclusion of conditions of operation as are reasonably necessary to assure the maintenance of compliance with the applicable ordinances, resolutions, rules and regulations when issuing an Air Discharge Permit for installation and establishment of an air contaminant source.

7.d WAC 173-460 "Controls for New Sources of Toxic Air Pollutants" requires Best Available Control Technology for toxic air pollutants (T-BACT), identification and quantification of emissions of toxic air pollutants and demonstration of protection of human health and safety.

7.e WAC 173-476 "Ambient Air Quality Standards" establishes ambient air quality standards for PM_{10}, $PM_{2.5}$, lead, sulfur dioxide, nitrogen dioxide, ozone, and carbon monoxide in the ambient air, which shall not be exceeded.

7.f SWCAA 400-040 "General Standards for Maximum Emissions" requires all new and existing sources and emission units to meet certain performance standards with respect to Reasonably Available Control Technology (RACT), visible emissions, fallout, fugitive emissions, odors, emissions detrimental to persons or property, sulfur dioxide, concealment and masking, and fugitive dust.

7.g SWCAA 400-050 "Emission Standards for Combustion and Incineration Units" requires that all provisions of SWCAA 400-040 be met and that no person shall cause or permit the emission of particulate matter from any combustion or incineration unit in excess of 0.23 grams per dry cubic meter (0.1 grains per dry standard cubic foot) of exhaust gas at standard conditions.

7.h SWCAA 400-060 "Emission Standards for General Process Units" prohibits particulate matter emissions from all new and existing process units in excess of 0.1 grains per dry standard cubic foot of exhaust gas.

7.i SWCAA 400-109 "Air Discharge Permit Applications" requires that an Air Discharge Permit application be submitted for all new installations, modifications, changes, or alterations to process and emission control equipment consistent with the definition of "new source". Sources wishing to modify existing permit terms may submit an Air Discharge Permit application to request such changes. An Air Discharge Permit must be issued, or written confirmation of exempt status must be received, before beginning any actual construction, or implementing any other modification, change, or alteration of existing equipment, processes, or permits.

7.j SWCAA 400-110 "New Source Review" requires that SWCAA issue an Air Discharge Permit in response to an Air Discharge Permit application prior to establishment of the new source, emission unit, or modification.

7.k SWCAA 400-113 "Requirements for New Sources in Attainment or Nonclassifiable Areas" requires that no approval to construct or alter an air contaminant source shall be granted unless it is evidenced that:

(1) The equipment or technology is designed and will be installed to operate without causing a violation of the applicable emission standards;

(2) Best Available Control Technology will be employed for all air contaminants to be emitted by the proposed equipment;

(3) The proposed equipment will not cause any ambient air quality standard to be exceeded; and

(4) If the proposed equipment or facility will emit any toxic air pollutant regulated under WAC 173-460, the proposed equipment and control measures will meet all the requirements of that Chapter.

8. RACT/BACT/BART/LAER/PSD/CAM DETERMINATIONS

The proposed equipment and control systems incorporate Best Available Control Technology (BACT) for the types and amounts of air contaminants emitted by the processes as described below:

New BACT Determinations

8.a BACT Determination – Aggregate Crushing and Screening. The use of high pressure wet suppression systems, including spray or fog nozzles operating at a minimum pressure of 80 psig, has been determined to meet the requirements of BACT for the proposed crushing and screening equipment. Because there are other wet suppression systems (e.g., sonic fogging systems) that utilize a lower water pressure but provide equivalent or superior levels of emission control, the permit will allow for wet suppression systems reviewed and approved by SWCAA that provide equivalent or superior control of particulate matter emissions.

8.b BACT Determination – Fugitive Dust. The use of wet suppression has been determined to meet the requirements of BACT for fugitive dust emissions from storage piles, material transfer points, and haul roads at this facility.

Other Determinations

8.c Prevention of Significant Deterioration (PSD) Applicability Determination. The potential to emit of this facility is less than applicable PSD applicability thresholds. Likewise, this permitting action will not result in a potential increase in emissions equal to or greater than the PSD thresholds. Therefore, PSD review is not applicable to this action.

8.d Compliance Assurance Monitoring (CAM) Applicability Determination. CAM is not applicable to any emission unit at this facility because it is not a major source and is not required to obtain a Part 70 permit.

9. AMBIENT IMPACT ANALYSIS

9.a Toxic Air Pollutant Review. This facility does not emit quantifiable amounts of TAPs. Toxic air pollutant impacts are presumed to be below regulatory significance.

Conclusions

9.b Operation of a portable aggregate crushing plant, as proposed in ADP Application L-734, will not cause the ambient air quality requirements of Title 40 Code of Federal Regulations (CFR) Part 50 "National Primary and Secondary Ambient Air Quality Standards" to be violated.

9.c Operation of a portable aggregate crushing plant, as proposed in ADP Application L-734, will not cause the requirements of WAC 173-460 "Controls for New Sources of Toxic Air Pollutants" or WAC 173-476 "Ambient Air Quality Standards" to be violated.

9.d Operation of a portable aggregate crushing plant, as proposed in ADP Application L-734, will not cause a violation of emission standards for sources as established under SWCAA General Regulations Sections 400-040 "General Standards for Maximum Emissions," 400-050 "Emission Standards for Combustion and Incineration Units," and 400-060 "Emission Standards for General Process Units."

10. DISCUSSION OF APPROVAL CONDITIONS

SWCAA has made a determination to issue ADP 23-3583 in response to ADP Application L-734. ADP 23-3583 contains approval requirements deemed necessary to assure compliance with applicable regulations and emission standards as discussed below.

10.a Supersession of Previous Permits. This is the initial permit for this facility.

10.b General Basis. Permit requirements for equipment affected by this permitting action incorporate the operating schemes proposed by the applicant in ADP Application L-734. Permit requirements established by this action are intended to implement BACT, minimize emissions, and assure compliance with applicable requirements on a continuous basis. Emission limits for approved equipment are based on the maximum potential emissions calculated in Section 6 of this Technical Support Document.

10.c Monitoring and Recordkeeping Requirements. ADP 23-3583 establishes monitoring and recordkeeping requirements sufficient to document compliance with applicable emission limits, ensure proper operation of approved equipment and provide for compliance with generally applicable requirements. Specific monitoring requirements are established for material throughput, spray system inspection, and haul road usage.

10.d Reporting Requirements. ADP 23-3583 establishes general reporting requirements for annual air emissions, upset conditions and excess emissions. Specific reporting requirements are established for material throughput and haul road usage. Reports are to be submitted on an annual basis.

10.e Rock Crushing Equipment. Permit requirements for the proposed rock crushing equipment are consistent with the operating scheme and material data submitted by the applicant. Visible emission limits have been established consistent with proper operation of the proposed equipment and wet suppression systems. High pressure spray systems (≥80 psig) have been determined to be a minimum BACT requirement for individual rock crushers.

11. START-UP AND SHUTDOWN/ALTERNATIVE OPERATING SCENARIOS/POLLUTION PREVENTION

11.a Start-up and Shutdown Provisions. Pursuant to SWCAA 400-081 "Start-up and Shutdown", technology based emission standards and control technology determinations shall take into consideration the physical and operational ability of a source to comply with the applicable standards during start-up or shutdown. Where it is determined that a source is not capable of achieving continuous compliance with an emission standard during start-up or shutdown, SWCAA shall include appropriate emission limitations, operating parameters, or other criteria to regulate performance of the source during start-up or shutdown.

The applicant did not identify any start-up and shutdown periods during which affected equipment is not capable of achieving continuous compliance with applicable technology determinations or approval conditions. To SWCAA's knowledge, this facility can comply with all applicable standards during startup and shutdown.

11.b Alternate Operating Scenarios. SWCAA conducted a review of alternate operating scenarios applicable to equipment affected by this permitting action. The permittee did not propose or identify any applicable alternate operating scenarios. Therefore, none were included in the permit requirements.

11.c Pollution Prevention Measures. SWCAA conducted a review of possible pollution prevention measures for the facility. No pollution prevention measures were identified by either the permittee or SWCAA separate or in addition to those measures required under BACT considerations. Therefore, none were included in the permit requirements.

12. EMISSION MONITORING AND TESTING

There are no formal emission monitoring or testing requirements for this facility.

13. FACILITY HISTORY

13.a Previous Permitting Actions. SWCAA has not previously issued any Permits for this facility.

13.b Compliance History. A search of source records on file at SWCAA did not identify any outstanding compliance issues at this facility.

14. PUBLIC INVOLVEMENT OPPORTUNITY

14.a Public Notice for ADP Application L-734. Public notice for ADP Application L-734 was published on the SWCAA internet website for a minimum of (15) days beginning on May 10, 2023.

14.b Public/Applicant Comment for ADP Application L-734. SWCAA did not receive specific comments, a comment period request or any other inquiry from the public regarding this ADP application. Therefore, no public comment period was provided for this permitting action.

14.c State Environmental Policy Act. A complete SEPA checklist was submitted by Lakeside Industries - RAP Crusher in conjunction with ADP Application L-734. After reviewing the checklist, SWCAA has made a Determination of Non Significance (DNS 23-023) concurrent with issuance of ADP 23-3583.